

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
GROUP ART UNIT 3611**

EXAMINER: Lee, Benjamin C
APPELLANT: Tumer, Tumay O
SERIAL NO. 09/141,999
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FOR: Tag Having a Semiconductor Chip and Method of Attachment to Article
ART UNIT 2612

MS Appeal Brief - Patents
Commissioner of Patents and Trademarks
Washington, D.C. 20231
Attention: Board of Patent Appeals and Interferences

APPELLANT'S BRIEF UNDER 37 CFR § 1.192

This brief, transmitted in triplicate, is submitted in response to the notice of a non-compliant appeal brief mailed on March 6, 1009.

The fees required under § 1.17, and any required petition for extension of time for filing this brief and fees therefor, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains the following items under the headings in the order here indicated:

- I. Real Party In Interest
- II. Related Appeals And Interferences
- III. Status Of Claims
- IV. Status Of Amendments
- V. Summary Of Claimed Subject Matter
- VI. Grounds Of Rejection To Be Reviewed On Appeal
- VII. Argument

- VIII. Claims Appendix
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I. Real Party In Interest

The real parties in interest are the Applicant, Tumay O. Tumer.

II. Related Appeals And Interferences

There are no other appeals or interferences in this matter known to appellant.

III. Status Of Claims

1. Claims canceled: 1-26, 29-32, 53, 85-86, 88-89;
2. Claims pending: 27-28, 33-52, 54-84, 87, 90-109;
3. Claims rejected: 27-28, 33-52, 54-84, 87, 90-109; and
4. Claims on appeal: 27-28, 33-52, 54-84, 87, 90-109.

IV. Status Of Amendments

No amendments were filed after final rejection. The claims were rejected in the final Office action based on amendments entered in response to non-final Office action mailed November 23, 2005. Section IX recites the claims as entered/pending and under final rejection.

V. Summary Of Claimed Subject Matter

The pending claims recite a tag with an integrated circuit ("IC") that has (a) an antenna that receives an electromagnetic wave; (P5/L3-6, P43/L6-12 and corresponding Figure 12) (b) a signal that receives and stores input data from the wave; P15/L8-10 and P40/L8-14) (c) a separate power unit to power the IC; (P4/L16-19, P7/L3-16 and corresponding Figure 2) (d) a data processing system that process input data to output data; (P7/L24-P8/L9,) and (e) another antenna that transmits output data to the tag. (P4/L19-24, P39/L6-11, and P43/L25-P44/L11)

Preferred embodiments of the device include: a smart chip (see *e.g.*, specification pages 7-19; Figures 2-14); an antenna that receives an electromagnetic wave (see *e.g.*, specification pages

10-13; Figures 12, 17, and 19); a separate power storage component that receives and stores sufficient energy to power the chip (see *e.g.*, specification pages 19-23, Figures 8, 10-11); and a data processing system that produces output data (see *e.g.*, specification pages 7-19).

Independent claim 27 recites a tag comprising an integrated circuit that includes:

- a first antenna that receives an electromagnetic wave; (P5/L3-6, P43/L6-12 and corresponding Figure 12)
- a signal receiving system that receives and stores input data derived from the wave; (P15/L8-10 and P40/L8-14)
- a separate power storage component that receives and stores sufficient energy to power the integrated circuit; (P4/L16-19, P7/L3-16 and corresponding Figure 2)
- a data processing system that produces output data from the input data; (P7/L24-P8/L9,) and
- a second antenna that transmits at least a portion of the output data externally to the tag. (P4/L19-24, P39/L6-11, and P43/L25-P44/L11)

Independent claim 28 recites a tag comprising an integrated circuit that includes:

- an antenna that receives an electromagnetic wave; (P5/L3-6, P43/L6-12 and corresponding Figure 12)
- a separate power storage component that receives and stores sufficient energy to power the integrated circuit; (P4/L16-19, P7/L3-16 and corresponding Figure 2)
- a data processing system that produces output data; (P7/L24-P8/L9,) and
- electronics that transmits at least a portion of the output data externally to the tag. (P4/L19-24, P39/L6-11, and P43/L25-P44/L11)

Independent claim 75 recites a tag comprising an integrated circuit that includes:

- a antenna that receives an electromagnetic wave; (P5/L3-6, P43/L6-12 and corresponding Figure 12)
- a signal receiving system that receives and stores input data derived from the wave; (P15/L8-10 and P40/L8-14)

a separate power storage component that receives and stores sufficient energy to power the integrated circuit; (P4/L16-19, P7/L3-16 and corresponding Figure 2) and electronics that transmits at least a portion of the input data externally to the tag. (P4/L19-24, P39/L6-11, and P43/L25-P44/L11)

VI. Grounds of Rejection To Be Reviewed On Appeal

1. Rejection of claims 75-76,78-81, 83-84, 90-96 and 100 under 35 U.S.C. § 103(a) as being obvious over Kip et al. (U.S. Pat. No. 5,105,190) (Final Office action, pages 2-6).
2. Rejection of claims 27-28, 33-44, 48-52, 54-64, 68-74, 77, 85-88, 102-103 and 107-109 under 35 U.S.C. § 103(a) as being obvious over Kip in view of Moskowitz et al. (U.S. Pat. No. 5,528,222) and Carroll (U.S. Pat. No. 4,857,893) (Final Office action, pages 6-12).
3. Rejection of claim 101 under 35 U.S.C. § 103(a) as being obvious over Kip in view of Carroll and Tuttle et al. (U.S. Pat. No. 5,779,839) (Final Office action, page 13).
4. Rejection of claims 104-106 under 35 U.S.C. § 103(a) as being obvious over Kip in view of Moskowitz, Carrol and Tuttle (Final Office action, page 13).
5. Rejection of claim 97 under 35 U.S.C. § 103(a) as being obvious over Kip in view of Carrol and Roth et al. (U.S. Pat. No. 5,272,117) (Final Office action, page 13).
6. Rejection of claims 45 and 65 under 35 U.S.C. § 103(a) as being obvious over Kip in view of Moskowitz, Carrol and Roth (Final Office action, page 14).
7. Rejection of claims 46-47 and 66-67 under 35 U.S.C. § 103(a) as being obvious over Kip in view of Moskowitz, Carrol and further in view of Schoenian et al. (U.S. Pat. No. 5,748,106) (Final Office action, page 14).
8. Rejection of claims 98-99 under 35 U.S.C. § 103(a) as being obvious over Kip and Carroll and further in view of Schoenian (Final Office action, page 15).

9. Rejection of claim 82 under 35 U.S.C. § 103(a) as being obvious over Kip in view of Moskowitz and Carrol and further in view of Carney et al. (U.S. Pat. No. 5,446,447) (Final Office action, page 16).

10. Rejection of claim 89 under 35 U.S.C. § 103(a) as being obvious over Kip, Moskowitz and Carrol in view of Lake (U.S. Pat. No. 6,031,459) (Final Office action, page 17).

VII. Background

On **September 14, 1999** the appellant filed application no. 09/396,352 for Tag Having a Semiconductor Chip and Method of Attachment to Article .

On **March 13, 2000** the Office requested restrictions of the claims 1 and 2.

On **June 13, 2000** the applicant responded the restriction by canceling claim 2 and insert new claims 3-26.

On **July 19, 2000** the Office rejected claims 11, 24 and 25 as being indefinite for failing to particularly point out and distinctly claim the inventive subject matter. Additionally, claims 3-10, 12, 13 and 22 were rejected as being anticipated by Confino et al. (U.S. Pat. No. 5,966,082). Claims 11, 16-19 and 23-26 were also rejected as being obvious over Confino. Claims 1, 14, 15, 20 and 21 were further rejected as being obvious over Confino in view of Wood Jr. (U.S. Pat. No. 5,842,118).

On **October 13, 2000** the applicant filed a response to the Office action in which the pending claims were amended. Specifically, previously pending claims 1, 3-15, 21-22, and 24-26 were amended. Other claims remained as presented before.

On **January 18, 2001** the Office finally rejected pending claims 1, 3-22 and 24-26 as being anticipated by Murdoch (U.S. Pat. No. 5,153,583). Claims 3-10, 12, 13, 20 and 21 were also rejected as being anticipated by Carroll. Furthermore, claims 11, 14-19, 22 and 24-26 were rejected for being obvious over Murdoch and over Carroll. Finally, claim 1 was rejected for being obvious over Carroll in view of Murdoch.

On **July 12, 2001** the applicant filed a request for continued examination and an amendment in which the applicant canceled claims 1, 2-22, and 24-26 and added new claims 27-

68. examiner conducted a second interview with the applicant. The new claims recited two separate antennas which was not featured in any of the prior art cited by the Office action.

On **August 28, 2001** the Office rejected claims 27-68. Specifically, claims 34, 35, 54 and 55 were rejected as being indefinite for failing to particularly point out and distinctly claim the inventive subject matter. Additionally, claims 27-68 were rejected as being anticipated by Confino et al. (U.S. Pat. No. 5,966,082). Claims 28 and 49-68 were also rejected as being obvious over Carroll in view of Goff. Claims 27-48 were further rejected as being obvious over Carroll in view of Goff and further in view of Murdoch.

On **February 26, 2002** the applicant amended claims 27, 28, 34 and 54 and added new claims 69 and 70.

On **May 15, 2002**, the Office rejected claims 28, 49-69 and 70 as being obvious over Carroll in view of Goff and Nova et al. (U.S. Pat. 6,136,274 and 6,329, 139). Claims 27-38 and 69 were also rejected as being obvious over Carroll in view of Goff and Nova as being applied to claim 28 and further in view of Murdoch. Furthermore, claims 27-70 were rejected as being obvious over Murdoch in view of Goff and Nova.

On **November 13, 2002**, the applicant added new claims 71-74.

On **February 11, 2003**, the Office issued a Final Office action in which the claims 28, 49-69, 70, 72 and 74 were rejected as being obvious over Carroll in view of Goff and Nova. Claims 27-38, 69, 71 and 73 were also rejected as being obvious over Carroll in view of Goff and Nova as being applied to claim 28 and further in view of Murdoch. Furthermore, claims 27-74 were rejected as being obvious over Murdoch in view of Goff and Nova.

On **May 8, 2003**, the applicant filed a response.

On **July 30, 2003**, the Office rejected claims 27-32, 34-36, 40, 42-43, 48-52, 54-56, 60, 62-63, 68-70 and 72 as being obvious over Carroll in view of Moskowitz. Claims 33, 37, 53 and 57 were also rejected as being obvious over Carroll in view of Moskowitz and Auberbach et al. (U.S. Pat. No. 6,002,343). Furthermore, claims 38-39, 41, 58-59, 61, 71 and 73-74 were rejected as being obvious over Carroll in view of Moskowitz in view of Kip. Claims 44 and 64 were also rejected as being obvious over Carroll in view of Moskowitz in view of Turner (U.S. Pat. No. 5,793,305). Claims 45 and 65 were further rejected as being obvious over Carroll in view of

Moskowitz and Roth. Finally claims 46, 47, 66, and 67 were rejected as being obvious over Carroll in view of Moskowitz in view of Schoenian.

On **December 19, 2003**, the applicant canceled claims 29-31.

On **March 23, 2004**, the Office issued a Final Office action in which claims 27,28, 32, 34-36, 40, 42, 43, 48-52, 54-56, 60, 62, 63, 68-70 and 72 were rejected as being obvious over Carroll in view of Moskowitz. Further, claims 33, 37, 53 and 57 were rejected as being obvious over Carroll in view of Moskowitz in view of Auerbach. Claims 38, 39, 41, 58, 58, 61, 71, 73 and 74 were rejected as being obvious over Carroll in view of Moskowitz in view of Kip. Claims 44 and 64 were also rejected as being obvious over Carroll in view of Moskowitz in view of Turner (U.S. Pat. No. 5,793,305). Claims 45 and 65 were further rejected as being obvious over Carroll in view of Moskowitz and Roth. Finally claims 46, 47, 66, and 67 were rejected as being obvious over Carroll in view of Moskowitz in view of Schoenian.

On **August 23, 2004**, the applicant amended claims 27, 33-52, 54-74 and added claims 75-89.

On **December 13, 2004**, the Office issued a notice of non-compliant amendment.

On **December 22, 2004**, the applicant filed a response after final rejection.

On **May 23, 2005**, the Office rejected claims 27, 28, 33-52 and 54-89 as being obvious over Kip in view of Carroll and Moskowitz. Further, claims 45 and 65 were further rejected as being obvious over Carroll in view of Moskowitz and Roth. Claims 46, 47, 66, and 67 were rejected as being obvious over Carroll in view of Moskowitz in view of Schoenian. Claim 82 was rejected as being obvious over Kip, Moskowitz and Carroll in view of Carney et al. (U.S. Pat. No. 5,446,447).

On **October 21, 2005**, the Office reissued the response dated May 23, 2005.

On **November 23, 2005**, the applicant responded by amending claims 27-29, 33-34, 36, 45, 48, 51, 54, 56-58, 65, 68, 71-84. Claims 90-109 were added and claims. Claims 85, 86, 88, and 89 were canceled. Applicant responded and among other things clearly pointed out that the examiner had failed to set forth any motivation (other than hindsight or the fact that the invention is useful) to combine in the previous Office action.

The Office finally rejected claims 26-32 on **March 28, 2006** on the same ground with arguments set forth in the November 23, 2005 Office action.

Consequently, the applicant files his notice of appeal.

ARGUMENT

1. Rejection under U.S.C. 103(a) (Kip/Carroll)

Claims 75-76, 78-81, 83-84, 90-96 and 100 were rejected in the final Office action dated March 28, 2006 under 35 U.S.C. § 103(a) as being obvious over Kip in view of Carroll. The applicant disagrees. In attempting to support such rejection, the examiner recites various elements of the claims pointing to their alleged counterparts in the references, and argued that:

(a) it would have been obvious to modify Kip by implementing the tag system of Carroll in an integrated circuit form to become that combination that would have mass production benefits such as costs, and compact housing;

(b) it would have been obvious to further modify Kip by implementing the tag system of Carroll using RF waves to become that combination that would have increased reading range for broader utility;

(c) it would have been obvious to further modify Kip by implementing the tag system of Carroll using an appropriate shift register circuit to become that combination that would have generated a memory storage or a pulse generating circuit;

(d) it would have been obvious to further modify Kip by implementing the tag system of Carroll using either analog or digital form to become that combination that would have generated the input and output data in a tag; and

(e) it would have been obvious to further modify Kip by implementing the tag system of Carroll to become that combination that would have logically determine the current mode of operation.

To properly establish *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art (see e.g., *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)).

Furthermore, it is well recognized that the factual inquiry must be based on objective evidence of record. See, e.g., *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 USPQ2d 1456, 1459 (Fed. Cir. 2000) (“a showing of a suggestion, teaching, or motivation to combine the prior art references is an ‘essential component of an obviousness

holding”). The courts have held that “...teachings of references can be combined only if there is some suggestion or incentive to do so.” (quoting *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)). Indeed, particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed (see, e.g., *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). Thus, the examiner can satisfy the burden of showing obviousness of the combination only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992).

The appellant offers two main arguments in this case. First, the examiner failed to establish a *prima facie* showing of obviousness. Among other things, the examiner failed to identify any teaching, suggestion, or motivation in the prior to combine the references in a manner that would satisfy all of the elements of the pending claims. Nor can he. The only reference that has an on-chip antenna, Carroll, is completely silent as to whether the antenna could provide sufficient power to operate the chip, and instead teaches that its chip is powered by an external battery. The other references Kip and Moskowitz, fail to teach that a single on-board antenna could provide such power.

Second, even if the examiner had established a *prima facie* showing of obviousness, and even if the references did contain among them all of the elements of the pending claims, the rejections on obviousness would still be inappropriate because one of ordinary skill in the art would have expected the claimed combinations to fail. The reason is that such a person would have expected that the combination to fail: (1) an antenna disposed on an IC would produce insufficient power to operate the IC; and (2) an on-chip component would be unable to store enough energy to power the chip. The proof is that every embodiment in the prior art used either a second, off-chip antenna or an external power source.

2. Rejection under U.S.C. 103(a) (Kip/Moskowitz/Carroll)

Claims 27-28, 33-44, 48-52, 54-64, 68-74, 77, 85-88, 102-103 and 107-109 under 35 U.S.C. § 103(a) as being obvious over Kip in view of Moskowitz and Carroll (Final Office action, pages 6-12).

The examiner cites Moskowitz for the additional teaching of alternative use of first and second (dipole) antennas for receiving and transmitting. But that doesn't help establish obviousness. Moskowitz still fails to teach, suggest, or motivate one of ordinary skill in the art to use on-chip antennas to provide sufficient power to operate the chip.

3. Rejection under U.S.C. 103(a) (Kip/Carroll/Tuttle)

Claim 101 was rejected under 35 U.S.C. § 103(a) as being obvious over Kip in view of Carroll and Tuttle et al. (U.S. Pat. No. 5,779,839).

The addition of Tuttle doesn't help establish obviousness either. The Office apparently cited Tuttle for the teaching that a single pole antenna could be used to power a chip. But Tuttle's antenna is not on the chip. All that Tuttle demonstrates is that those of ordinary skill in the art knew that a single off-chip antenna could be made large enough to power the chip. Tuttle adds nothing at all with respect to whether an on-chip antenna, which would necessarily be much smaller, could provide sufficient power to operate the chip.

4. Rejection under U.S.C. 103(a) (Kip/Carroll/Tuttle/Moskowitz)

Claims 104-106 were rejected under 35 U.S.C. § 103(a) as being obvious over Kip in view of Moskowitz, Carroll and Tuttle (Final Office action, page 13). Here the Office is merely combining all four references discussed above, using a rehash of its earlier arguments. But the combination of all four references fails as completely as any of the sub-combinations. There is simply no teaching, suggestion, or motivation in any prior art to power an integrated circuit entirely by an on-chip antenna.

5. Rejection under U.S.C. 103(a) (Kip/Carroll/Roth)

Claim 97 was rejected under 35 U.S.C. § 103(a) as being obvious over Kip in view of Carroll and Roth (Final Office action, page 13). The examiner cites Roth as teaching formation of

a substrate material of an Independent claims. Roth does indeed teach that, but the teaching is unavailing to patentability. Roth fails to teach formation of a substrate material on an IC that has a power storage component within the IC. In any event, claim 97 is patentable by virtue of its dependency on claim 75.

6. Rejection under U.S.C. 103(a) (Kip/Moskowitz/Carroll/Roth)

Claims 45 and 65 were rejected under 35 U.S.C. § 103(a) as being obvious over Kip in view of Moskowitz, Carrol and Roth (Final Office action, page 14). Here again, the addition of another reference is unavailing. These claims are all allowable by virtue of their dependency on allowable claims 27 and 28, respectively.

7. Rejection under U.S.C. 103(a) (Kip/Moskowitz/Carroll/Schoenian)

Claims 46-47 and 66-67 were rejected under 35 U.S.C. § 103(a) as being obvious over Kip in view of Moskowitz, Carrol and further in view of Schoenian (Final Office action, page 14). The examiner cites Schoenian as teaching use of a transponder on a vehicle, but the additional reference is still unavailing. These claims are all allowable by virtue of their dependency on one either allowable claim 27 or allowable claim 28.

8. Rejection under U.S.C. 103(a) (Kip/Carroll/Schoenian)

Claims 98-99 were rejected under 35 U.S.C. § 103(a) as being obvious over Kip and Carroll and further in view of Schoenian (Final Office action, page 15). Here the examiner is just rehashing different combinations, none of which teach an on-chip antenna that provides sufficient power to operate the chip. Furthermore, claims 98-99 are allowable by virtue of their dependency on claims 27-28.

9. Rejection under U.S.C. 103(a) (Kip/Moskowitz/Carroll/Carney)

Claim 82 was rejected under 35 U.S.C. § 103(a) as being obvious over Kip in view of Moskowitz and Carrol and further in view of Carney et al. (U.S. Pat. No. 5,446,447) (Final Office action, page 16). The examiner cites Carney as teaching a RF tag with an alternative use of a half-wave or quarter wave patch antenna. Here again the citation is unavailing. No combination of the

cited references teach, suggest, or motivate one of ordinary skill in the art to power a chip with an on-chip antenna. Furthermore, claim 82 is allowable by virtue of its dependency on claim 27.

10. Rejection under U.S.C. 103(a) (Kip/Moskowitz/Carroll/Lake)

Claim 89 was rejected under 35 U.S.C. § 103(a) as being obvious over Kip, Moskowitz and Carroll in view of Lake (Final Office action, page 17). This rejection is moot. Claim 89 was cancelled in the November 22, 2005 response to the Office action dated October 21.

Conclusion

In its repeated obviousness rejections throughout the very long prosecution history, the examiner never once set forth a proper *prima facie* showing of obviousness. The rejections should be withdrawn.

Respectfully submitted,
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VIII. CLAIMS APPENDIX

Claims 1-26 (canceled)

27. (Previously presented) A tag comprising an integrated circuit that includes:
a first antenna that receives an electromagnetic wave;
a signal receiving system that receives and stores input data derived from the wave;
a separate power storage component that receives and stores sufficient energy to power the integrated circuit ;
a data processing system that produces output data from the input data; and
a second antenna that transmits at least a portion of the output data externally to the tag.
28. (Previously presented) A tag comprising an integrated circuit that includes:
an antenna that receives an electromagnetic wave;
a separate power storage component that receives and stores sufficient energy to power the integrated circuit ;
a data processing system that produces output data; and
electronics that transmits at least a portion of the output data externally to the tag.
- 29 - 31. (Canceled)
32. (Canceled)
33. (Previously presented) The tag of claim 27, wherein the wave has a wavelength within a spectrum of the wavelengths from radio waves to ultraviolet light, inclusive.
34. (Previously presented) The tag of claim 27, further comprising a memory section that stores at least a portion of the input data and at least a portion of the output data.
35. (Previously presented) The tag of claim 34, wherein the memory section is nonvolatile.
36. (Previously presented) The tag of claim 27, further comprising a multiplexer that controls flow of the input data.
37. (Previously presented) The tag of claim 27, further comprising a pulse generating circuit.

38. (Previously presented) The tag of claim 27, wherein the input data is in analog form.
39. (Previously presented) The tag of claim 27, wherein the input data is in digital form.
40. (Previously presented) The tag of claim 27, wherein the output data is in analog form.
41. (Previously presented) The tag of claim 27, wherein the output data is in digital form.
42. (Previously presented) The tag of claim 27, further comprising a clock generator circuit.
43. (Previously presented) The tag of claim 27, further comprising a shift register circuit.
44. (Previously presented) The tag of claim 27, wherein the second antenna is a backscatter type antenna.
45. (Previously presented) The tag of claim 27, wherein the integrated circuit is built onto material that includes a composition selected from the group consisting of silicone, germanium, GaAs, sapphire, and diamond.
46. (Previously presented) The tag of claim 27, further comprising test and monitoring points and pads.
47. (Previously presented) The tag of claim 27, further comprising a test and monitoring control circuitry.
48. (Previously presented) The tag of claim 27, further comprising circuits selected from a group of circuits including logic, sequencing and switching.
49. (Previously presented) The tag of claim 28, wherein the wave has a wavelength within a spectrum of the wavelengths from radio waves to ultraviolet light.
50. (Previously presented) The tag of claim 27, wherein the first antenna comprises a dipole antenna.
51. (Previously presented) The tag of claim 27, wherein the second antenna comprises a dipole antenna.

52. (Previously presented) The tag of claim 51, wherein the second antenna is powered entirely by the energy stored by the power storage component.
53. (Canceled)
54. (Previously presented) The tag of claim 28, further comprising a memory section that stores at least a portion of the output data.
55. (Previously presented) The tag of claim 54, wherein the memory section is a nonvolatile memory.
56. (Previously presented) The tag of claim 28, further comprising a multiplexer that controls a flow of the output data
57. (Previously presented) The tag of claim 28, further comprising a pulse generating circuit is used.
58. (Previously presented) The tag of claim 28, further comprising a circuit ~~circuitry~~ that receives input data in analog form.
59. (Previously presented) The tag of claim 58, wherein the input data is in digital form.
60. (Previously presented) The tag of claim 28, wherein the output data is in analog form.
61. (Previously presented) The tag of claim 28, wherein the output data is in digital form.
62. (Previously presented) The tag of claim 28, further comprising a clock generator circuit.
63. (Previously presented) The tag of claim 28, further comprising a shift register circuit.
64. (Previously presented) The tag of claim 51, wherein the second antenna is a backscatter type antenna.
65. (Previously presented) The tag of claim 28, wherein the integrated circuit is built onto a substrate that includes a material selected from the group consisting of silicone, germanium, GaAs, sapphire, and ~~or~~ diamond.

66. (Previously presented) The tag of claim 28, further comprising test and monitoring points and pads.
67. (Previously presented) The tag of claim 28, further comprising test and monitoring control circuitry.
68. (Previously presented) The tag of claim 28, further comprising circuits selected from a group of circuits including logic, sequencing and switching.
69. (Previously presented) The tag according to claim 27, wherein the first antenna is tuned to a frequency from radio waves to ultra violet, inclusive.
70. (Previously presented) The tag according to claim 28, wherein the second antenna is tuned to a frequency from radio waves to ultra violet, inclusive.
71. (Previously presented) The tag of claim 27 wherein the integrated circuit is monolithic, the first antenna supplies power to both the integrated circuit and the second antenna, and further comprising a memory that stores at least a portion of the input data and at least a portion of the output data.
72. (Previously presented) The tag of claim 28 wherein the integrated circuit is monolithic, the first antenna supplies power to the integrated circuit, and further comprising a memory that stores at least a portion of the input data and at least a portion of the output data.
73. (Previously presented) The tag of claim 27, further comprising a data processing system that processes the input data and produces at least one decision and takes at least one action.
74. (Previously presented) The tag of claim 28, further comprising a data processing system that processes the input data and produces at least one decision and takes at least one action.
75. (Previously presented) A tag comprising an integrated circuit that includes:
a ~~first~~ antenna that receives an electromagnetic wave;
a signal receiving system that receives and stores input data derived from the wave;
a separate power storage component that receives and stores sufficient energy to power the integrated circuit ; and

electronics that transmits at least a portion of the input data externally to the tag.

76. (Previously presented) The tag of claim 75, wherein the wave has a wavelength within a spectrum of the wavelengths from radio waves to ultraviolet light.

77. (Previously presented) The tag of claim 75, wherein the ~~first~~ antenna comprises a dipole antenna.

78. (Previously presented) The tag of claim 75, wherein the ~~second~~ antenna comprises a loop antenna.

79 (Previously presented) The tag of claim 75, further comprising a memory section that stores at least ~~one~~ a portion of the input data.

80. (Previously presented) The tag of claim 75, further comprising a tuning circuit that tunes the first antenna to receive the wave at a frequency selected from a range from waves to ultraviolet.

81. (Previously presented) The tag of claim 79, wherein the memory section is nonvolatile.

82. (Previously presented) The tag of claim 27, wherein the driver circuit drives the second antenna selected from a group including full wave, half-wave and ~~or~~ quarter-wave reflectors.

83. (Previously presented) The tag of claim 75, further comprising a multiplexer that controls flow of the input data.

84. (Previously presented) The tag of claim 75, further comprising a pulse generating circuit.

85. (Canceled)

86. (Canceled)

87. (Previously presented) The tag of claim 27, wherein the first and second antennas are a single antenna.

88. (Canceled)

89. (Canceled)
90. (Previously presented) The tag of claim 75, further comprising a circuit that receives input data in analog form.
91. (Previously presented) The tag of claim 75, wherein the input data is in digital form.
92. (Previously presented) The tag of claim 75, wherein the output data is in analog form.
93. (Previously presented) The tag of claim 75, wherein the output data is in digital form.
94. (Previously presented) The tag of claim 75, further comprising a clock generator circuit.
95. (Previously presented) The tag of claim 75, further comprising a shift register circuit.
96. (Previously presented) The tag of claim 75, further comprising a data processing system that processes the input data and produces at least one decision and takes at least one action.
97. (Previously presented) The tag of claim 75, wherein the integrated circuit utilizes a substrate that includes a material selected from the group consisting of silicone, germanium, GaAs, sapphire and diamond.
98. (Previously presented) The tag of claim 75, further comprising test and monitoring points and pads.
99. (Previously presented) The tag of claim 75, further comprising test and monitoring control circuitry.
100. (Previously presented) The tag of claim 75, further comprising circuits selected from the group of circuits consisting of logic, sequencing, and switching circuits.
101. (Previously presented) The tag of claim 75, wherein the antenna comprises a single pole antenna.
102. (Previously presented) The tag of claim 27, wherein the first antenna comprises a loop antenna.

103. (Previously presented) The tag of claim 27, wherein the second antenna comprises a loop antenna.
104. (Previously presented) The tag of claim 27, wherein the first antenna comprises a single pole antenna.
105. (Previously presented) The tag of claim 27, wherein the second antenna comprises a single pole antenna.
106. (Previously presented) The tag of claim 28, wherein the antenna comprises a single pole antenna.
107. (Previously presented) The tag of claim 28, wherein the antenna comprises a loop antenna.
108. (Previously presented) The tag of claim 28, wherein the antenna is a dipole type antenna.
109. (Previously presented) The tag of claim 108, wherein the antenna is a backscatter type antenna.

IX. EVIDENCE APPENDIX

No evidence was submitted pursuant to §§ 1.130, 1.131, or 1.132

X. RELATED PROCEEDINGS APPENDIX

No related proceedings are known to the applicant.